

WHAT IS CLAIMED IS:

1. An inspection device for inspecting a position of measuring points set up on a curved surface of an object to be measured, and inspecting a dimension accuracy of the object to be measured, comprising:

a light projector that irradiates a parallel light made incident along the measuring points on the curved surface; and

a light receiver that receives the parallel light that passes the measuring points, and obtains the position of the measuring points based on the receiving position of the parallel light.

2. A tape reel inspection device for inspecting a position of each flange on inner diameter side or outer diameter side of flanges, distance between flanges, and an inclined angle of inner surface of each flange in a tape reel having a pair of disk-shaped flanges fixed to both ends of a cylindrical hub, comprising:

a rotator that rotates the tape reel in the circumferential direction of the flanges centering on the hub;

a first light projector that irradiates a first parallel light that passes a first measuring point set up on inner diameter side of inner surface of one of the flanges, and a second parallel light that passes a second measuring point set up on the inner diameter side of the inner surface of the other flange, so that the first measuring point and the position in the circumferential direction of each flange may be the same position;

a first light receiver that receives the first parallel light that passes the first measuring point and the second parallel light that passes the

second measuring point, and obtains the first measuring point and the second measuring point based on the receiving position of the first parallel light and the second parallel light;

a second light projector that irradiates a third parallel light that passes a third measuring point set up on the outer diameter side of the inner surface of the flange, and a fourth parallel light that passes a fourth measuring point set up on the outer diameter side of the inner surface of the flange so that the third measuring point and the position in the circumferential direction of each flange may be the same position; and

a light receiver that receives the fourth parallel light that passes the fourth measuring point and obtains the third measuring point and the fourth measuring point based on the receiving position of the third parallel light and the fourth parallel light.

3. An inspection method using an inspection device described in claim 2, comprising the steps of:

irradiating the first, second, third, and fourth parallel lights toward the first, second, third, and fourth measuring points from the first projector and the second projector, while rotating the tape reel by the rotator;

receiving the first, second, third, and fourth parallel lights that pass the first, second, third, and fourth measuring points by the first light receiver and the second light receiver, and obtaining the first, second, third, and fourth measuring points based on the receiving positions of the first, second, third, and fourth parallel lights;

calculating the position of each flange on the inner diameter side of the flange and the distance between flanges, from the first measuring point

and the second measuring point;

calculating the position of each flange on the outer diameter side of the flange and the distance between flanges, from the third measuring point and the fourth measuring point;

calculating an inclined angle of inner surface of one of the flanges from the first measuring point and the third measuring point;

calculating the inclined angle of the inner surface of the other flange from the second measuring point and the fourth measuring point;
and

comparing the calculated position of each flange on the inner diameter side of the flange and distance between flanges, the calculated position of each flange on the outer diameter side of the flange and distance between flanges, an inclined angle of inner surface of one of the flanges, and the inclined angle of the inner surface of the other flange, with target values prepared beforehand, to thereby the dimension accuracy of the position of each flange on the inner diameter side or on the outer diameter side of the tape reel, the distance between flanges, and the inclined angle of the inner surface of each flange are inspected.

4. A positioning device of a member to be positioned, comprising a table that has a member to be positioned serving as a hub as described in claim 1 placed thereon;

a guide pin which is erected on the placement surface and positions the member to be positioned on the table by fitting its positioning hole thereinto;

pluralities of injection pores that open on the outer periphery

surface of the guide pin;

an internal passage which is formed in the guide pin so as to inject a predetermined pressure of fluid from each injection pore toward the inner peripheral surface of the positioning hole of the member to be positioned; and

a fluid supply device which is connected to the other end of the internal passage and supplies a predetermined pressure of fluid thereto, so that the member to be positioned may be moved to an aligning position centering on the guide pin by pressure of the fluid injected from each injection hole.

5. The positioning device of the member to be positioned as described in claim 4, wherein the table is supported by an elastic body in an elevating/lowering manner, and a lid that is lowered to the table from the upper part of the table is formed in an elevating/lowering manner, so that a gap partitioned by the inner peripheral surface of the positioning hole, the outer peripheral surface of the guide pin, and the placement surface of the table may be closed by the lid.

6. The positioning device of the member to be positioned as described in claim 5, wherein a negative pressure suction port that absorbs the member to be positioned, opens on the placement surface of the member to be positioned serving as a hub, and after positioning the member to be positioned, the negative suction pressure is generated in the negative pressure suction port, to thereby absorb the member to be positioned onto the table.